

### REMARKS

Applicant notes that the correct status of claim 28 should have been "currently amended" in Applicant's prior Reply in response to the office action of January 11, 2006.

The examiner and the undersigned conducted a telephonic interview on September 5, 2006. Discussed were claims 1-15 and 18, and cases *In re Lowry*, *In re Warmerdam* and *State Street Bank*. No prior art was discussed.

Applicant contended that claims to the data structure were directed to statutory subject matter in view of the holdings of *Lowry* and *Warmerdam*, since the data structure claims were in fact directed to "A memory storing a data structure that represents a financial product, the data structure for use with a computer-based method of administering a financial product ... ."

Applicant contended that claims to a method were directed to statutory subject matter in view of the holdings of *Warmerdam* and *State Street Bank*, since claims were directed to: "A computer-based method of administering a first fund" and included features of "calculating in the computer ... , as in claims 17 and 18 or administering in the computer system, as in claim 16.

Agreement was reached that the rejection under 35 U.S.C. 101 was improper and should be withdrawn in view of the argument made by the undersigned, which the examiner requested be made in a formal response. That formal response is set out below.

In addition, Applicant has amended claims 2-10 and 12-15 to recite the "memory" rather than the financial product at the suggestion of the examiner. Applicant has also made clarifying amendments to the claims. For instance, claims 3, 4, 6, and 10 were amended to recite the features as fields of the data structure as were claims 12-15.

Minor typographical errors were corrected in claim 16, and the feature of calculating share aggregate size of the first and second funds based on a known numerical relationship or ratio between the share aggregation size of a creation unit of the first and the second funds were added to claims 23 and 28.

In addition new claims 33 and 34 were added that depend from claims 16 and 17 respectively.

Rejection under 35 U.S.C. 101

The examiner rejected claims 1-32 under 35 U.S.C. 101, as being directed to non-statutory subject matter based on the examiner's application of "Examination Guidelines for Computer-Related Inventions." The examiner stated:

As to claims 1-15, the claimed invention is implemented as Non-Functional Descriptive Material Per Se. "A data structure that represents a financial product" is considered a non-functional descriptive material. Where certain types of descriptive material, such as music, literature, art, photographs and mere arrangements or compilations of facts or data, are merely stored so as to be read or outputted by a computer without creating any functional interrelationship, either as part of the stored data or as part of the computing processes performed by the computer, then such descriptive material alone does not impart functionality either to the data as so structured, or to the computer. Such "descriptive material" is not a process, machine, manufacture or composition of matter. (Data consists of facts, which become information when they are seen in context and convey meaning to people. Computers process data without any understanding of what that data represents. Computer Dictionary 210 (Microsoft Press, 2d ed. 1994).)

In rejecting Appellant's claims directed to a data structure, the examiner states that: "A data structure that represents a financial product" is considered a non-functional descriptive material." The examiner however does not cite any authority for this statement.

Applicant points out to the examiner that Applicant has not claimed non functional descriptive material per se. Rather, claim 1 calls for "A memory storing a data structure that represents a financial product, the data structure for use with a computer-based method of administering a financial product that is traded on a first marketplace, ... :"

Claim 1 is clearly directed to patentable subject matter, for which the examiner must give full patentable weight to the data structure limitations. *In re Lowry*, 32 F.3d 1579, 32 USPQ2d 1031 (Fed. Cir. 1994) sets forth guidelines to be applied by the Patent Office in evaluating claims directed to data structures. In *Lowry*, the Federal Circuit noted that: "Lowry disclosed a data structure accessible by many different application programs. Lowry's data structure was based upon the 'Attributive data model.' The Attributive data model represents complex information in terms of attributes and relationships between attributes." *Lowry* F.3d at 1582. After acknowledging that the Board of Patent Appeals and Interferences had reversed the examiner's rejection of Lowry's data structure claims under 35 U.S.C. 101 because Lowry recited a

memory, an article of manufacture and a class of invention specifically prescribed by 35 U.S.C. 101, the court turned to the printed matter rejection of those claims as articulated by the Board. In reversing the Board, the Federal Circuit stated:

More than mere abstraction, the data structures are specific electrical or magnetic \*1584 structural elements in a memory. According to Lowry, the data structures provide tangible benefits: data stored in accordance with the claimed data structures are more easily accessed, stored, and erased. Lowry further notes that, unlike prior art data structures, Lowry's data structures simultaneously represent complex data accurately and enable powerful nested operations. In short, Lowry's data structures are physical entities that provide increased efficiency in computer operation. They are not analogous to printed matter. The Board is not at liberty to ignore such limitations.

In accord is *In re Warmerdam*, 33 F.3d, 1354 31 USPQ2d 1754 (Fed. Cir.1994) where found claims 1-4 and 6 reciting "steps [that] describe nothing more than the manipulation of basic mathematical constructs, the paradigmatic "abstract idea."<sup>1</sup>, or claim 6 directed to a data structure per se. In contrast, however the Federal Circuit found claim 5 which merely recited that the methods of any of claims 1-4 were executed on a computer clearly directed to "a machine, and is clearly patentable subject matter." 33 F.3d at 1360-61, 31 USPQ2d at 1759.

Unlike the situation in claims 1-4 and 6 in *Warmerdam* instant claim 1 calls for a memory storing a data structure that represents a financial product, the data structure for use with a computer-based method of administering the financial product. Thus, claim 1 by reciting "a memory" and a data structure functionally related to the substrate, i.e., memory, recites statutory subject matter under 35 U.S.C. 101, which is entitled to full patentable weight. As in *Lowry*, these claims are: "More than mere abstraction, the data structures are specific electrical or magnetic structural elements in a memory." *Lowry*, 32 F.3d at 1583-1584.

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<sup>1</sup> "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data. Both types of "descriptive material" are nonstatutory when claimed as descriptive material per se. *Warmerdam*, 33 F.3d at 1360, 31 USPQ2d at 1759. When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized.

Accordingly, claim 1 is directed to a practical application of the data structure namely, a computer-based method of administering a financial product that is traded on a first marketplace. Claim 1 does not encompass non functional descriptive material, such as music, literature, art, photographs and mere arrangements or compilations of facts or data, because the data structure in conjunction with the computer-based method of administering a financial product provides a functional interrelationship between the data structure and the substrate, i.e., memory on which the data structure is embodied.

Claims 2-15, as amended to call for the "memory" are proper under 35 U.S.C. 101 at least for the reasons discussed for claim 1.

Accordingly, the rejection of claims 1-15 as directed to non-statutory subject matter should be removed.

#### Claims 16-32

The examiner in rejecting claims 16-32, argued that the claimed invention "manipulates an abstract idea without practical application in the technological arts, because the claimed invention does not produce a "useful, concrete and tangible result."

Independent claims 16, 17, 18 and 24 are all directed to: "A computer-based method of administering a financial product (or a first fund)" and recite positive steps of "administering in a computer system" and/or calculating in the computer.

The claimed invention accomplishes the practical application of administration of a financial product or a first fund. This is a useful, concrete and tangible result in accordance with *State Street Bank & Trust Co. v. Signature Financial Group*, 149 F.3d 1368, 1373, 47 USPQ2d at 1601-02 (Fed. Cir. Jul. 23, 1998). Administration of a financial product or a first fund possesses sufficient "real world" value for which patent protection should be granted. The claimed methods are embodied as computer implemented methods with steps performed by a computer and thus, per se, are not directed to an abstract idea or concept, or simply a starting point for future investigation or research. (See *Brenner v. Manson*, 383 U.S. 519, 528-36, 148 USPQ 689, 693-96); *In re Ziegler*, 992, F.2d 1197, 1200-03, 26 USPQ2d 1600, 1603-06 (Fed. Cir. 1993)).

Applicant's claims and specification describe a practical application for the claimed invention, i.e., administration of a first fund to be arbitragable with a second fund, a clearly useful invention to investors and the financial community.

The examiner argues that according to *AT&T Corp. v. Excel Communications, Inc.*, 172 F.3d 1352, 1358, 50 USPQ2d 1447, 1452 (Fed. Cir. 1999) a claim is limited to a practical application when the method, as claimed, produces a concrete, tangible and useful result; i.e., the method recites a step or act of producing something that is concrete, tangible and useful. The examiner however fails to explain why Applicant's steps of "administering in a computer system a first fund" (Claim 16) or "calculating in the computer, the net asset value of the first fund ... (Claims 17, 18 and 24)" ... are not directed to something tangible and useful, e.g. determining the net asset value of the first fund, based on the closing prices of a second fund, which it is arbitragable against.

The examiner also fails to address why the machine limitations in each of these claims fails to satisfy the reasoning of *State Street*, 149 F.3d at 1373, 47 USPQ2d at 1601 and *In re Alappat* 33 F.3d 1526, 1544, 31 USPQ2d 1545, 1557 (Fed. Cir. 1994). Indeed in *State Street*, the patent in issue was:

generally directed to a data processing system (the system) for implementing an investment structure which was developed for use in Signature's business as an administrator and accounting agent for mutual funds. In essence, the system, identified by the proprietary name Hub and Spoke<sup>®</sup>, facilitates a structure whereby mutual funds (Spokes) pool their assets in an investment portfolio (Hub) organized as a partnership. This investment configuration provides the administrator of a mutual fund with the advantageous combination of economies of scale in administering investments coupled with the tax advantages of a partnership. *State Street* 33 F.3d at 1370.

The Federal Circuit in *State Street* 33 F.3d at 1373 reasoned that:

The Supreme Court has identified three categories of subject matter that are unpatentable, namely "laws of nature, natural

phenomena, and abstract ideas." Diehr, 450 U.S. at 185. Of particular relevance to this case, the Court has held that mathematical algorithms are not patentable subject matter to the extent that they are merely abstract ideas. See Diehr, 450 U.S. 175, passim; Parker v. Flook, 437 U.S. 584 (1978); Gottschalk v. Benson, 409 U.S. 63 (1972). In Diehr, the Court explained that certain types of mathematical subject matter, standing alone, represent nothing more than abstract ideas until reduced to some type of practical application, i.e., "a useful, concrete and tangible result." Alappat, 33 F.3d at 1544, 31 USPQ2d at 1557.

Unpatentable mathematical algorithms are identifiable by showing they are merely abstract ideas constituting disembodied concepts or truths that are not "useful." From a practical standpoint, this means that to be patentable an algorithm must be applied in a "useful" way. In Alappat, we held that data, transformed by a machine through a series of mathematical calculations to produce a smooth waveform display on a rasterizer monitor, constituted a practical application of an abstract idea (a mathematical algorithm, formula, or calculation), because it produced "a useful, concrete and tangible result"--the smooth waveform.

In *State Street* the Federal Circuit held that "the transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price, constitutes a practical application of a mathematical algorithm, formula, or calculation, because it produces "a useful, concrete and tangible result"- a final share price momentarily fixed for recording and reporting purposes and even accepted and relied upon by regulatory authorities and in subsequent trades. The Federal Circuit reasoned that the Supreme Court acknowledged that Congress intended 35 U.S.C. 101 to extend to "anything under the sun that is made by man." *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980) to give full effect to Congress's intent not to place any restrictions on the subject matter for which a patent may be obtained beyond those specifically recited in 101. *State Street* 33 F.3d at 1373. Indeed the subject matter of claims 16-32 is directed to the same type of subject matter that the Federal Circuit found to be statutory subject matter.

The examiner concludes that claims 1-32 are non-statutory "because they are directed solely to Non-Functional Descriptive Material Per Se." However, the examiner provides no

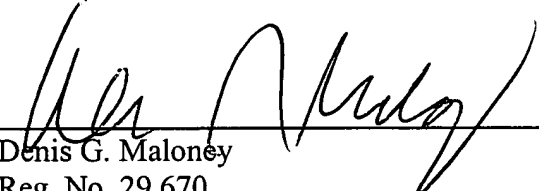
reasoning or rationale to support this naked conclusion. Rather, the examiner ignores that the claims recite computer-implemented methods and steps performed by a computer and that the claims produce a "useful, concrete and tangible result." The burden is on the examiner to show that the claims do not produce the "useful, concrete and tangible result." The examiner has not satisfied this burden.

Applicant contends therefore, that the claims are proper under 35 U.S.C. 101 since each of the claims recite computer implemented steps to produce the "useful, concrete and tangible result." Therefore, in view of the fact that the examiner has searched this case, causing Appellant to appeal and file an Appeal Brief and the examiner elected to respond to Appellant's Appeal Brief with two office actions rejecting the claims solely under 35 U.S.C. 101, without reciting any new art, that the case is now in condition for allowance.

Enclosed is a check for \$100 for excess claims. Please apply any other charges or credits to deposit account 06-1050.

Respectfully submitted,

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Denis G. Maloney  
Reg. No. 29,670

Fish & Richardson P.C.  
225 Franklin Street  
Boston, MA 02110  
Telephone: (617) 542-5070  
Facsimile: (617) 542-8906